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SAMPLING AND ANALYSIS PLAN FOR 80TH DIVISION RESERVE SITE LIGHTER
AMPHIBIOUS RESUPPLY CARGO (LARC) 60 AREA FORT STORY VA
9/1/1994
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SAMPLING AND ANALYSIS PLAN

FOR

80th Division LARC 60 Area

Fort Story, Virginia

Prepared by

U.S. Army Corps of Engineers

Omaha District

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1 Introduction.

1.1 Project Description. The LARC Area is a 50 foot by 70 foot concrete pad surrounded by asphalt. The north side is bordered by sand. Preliminary studies indicate that soil contamination of TRPH and Lead exist at the LARC Area. The previous sampling also indicated low level volatile contamination was present in this area at a six foot depth.

1.2 Project Objectives. The objective of the Rapid Response Action is to remove the petroleum contaminated soils from the LARC Area prior to the planned expansion of the existing LARC Area. The goal of this sampling event is to further characterize the area for the removal action and aid in determining the disposal options for the soil to be excavated.

1.2.1 LARC Staging Area. Six samples will be collected from the 2-3 foot depth and analyzed for TCLP Lead to determine if additional material needs to be excavated. Two 0-3 foot samples will be collected from the area with the highest contamination and analyzed for disposal parameters to assist in determining the disposal options. In addition, two investigative samples will be collected from the 4-6 foot range and analyzed for volatiles to determine if additional contamination exists at lower depths. An investigative sample will also be collected from the area outside of the fence on the east side of the sandy area to investigate any possibilities of material disposed of in this area. This sample will be collected from the 2-3 foot depth and analyzed for TRPH and Lead.

1.2.2 Concrete Pad/Former Drum Storage Area. Two samples will be collected from the 4-6 foot depth and analyzed for volatiles to determine the extent of the contamination. One composite sample will be collected from the 0-6 foot depth and analyzed for disposal parameters to determine the appropriate disposal options.

1.2.3 Wash Pad Area. In this area, additional investigative sampling is required. Two investigative samples will be collected from the 2-3 foot depth and analyzed for TRPH and Lead.

2 Sampling Procedure.

2.1 Equipment.

- Power Auger
- Stainless steel shovel
- Stainless steel mixing utensils
- Gloves (latex)
- Trash bags
- Zip-lock bags

Sample containers
Coolers
Chain-of-Custody forms
Tape (strapping and clear)
Indelible ink pen
Field log book
DQCR forms

2.2 Soil Sampling Procedure.

2.2.1 Don latex gloves,

2.2.2 Decontaminate sampling equipment, see Section 3

2.2.3 Sketch general sample locations in field notes,

2.2.4 With power auger or manual corer remove a sufficient amount of soil from desired location and place into the sample jar.

2.2.5 Labeling. See Section 4.2.

2.2.6 Sample Handling. The labeled, filled sample containers will be enclosed in a ziplock bag and placed in a cooler. Once the samples are collected they will be packaged as described in Section 4.

2.2.7 Sample Documentation. See Section 5.

3 Decontamination Procedures. All sampling equipment will be disposable, stainless steel, or teflon and shall be decontaminated between samples. The decontamination procedures are as follows:

- 1) Alconox wash and brushing to remove particles,
- 2) Tap water rinse,
- 3) Reagent grade isopropanol rinse, and
- 4) Triple deionized/distilled water rinse.

All decontamination water will be stored in a DOT approved drum that has been properly labeled with all pertinent information.

4 Sample Handling. Sample packaging, shipping, and chain-of-custody will follow the

guidelines as outlined in the Sample Handling Protocol (Appendix E, ER 1110-1-263, 1 October 1990).

4.1 Numbering Scheme. Samples taken will be numbered consecutively.

4.2 Sample Labels. Correct sample labeling and the corresponding notation of the sample ID numbers in the field logbook report are necessary to prevent misidentification of samples and their eventual results. All sample labels will be completed legibly with indelible ink. The labels will be affixed to the sample bottle and covered with clear tape. These labels will include the following at a minimum:

Name/initials of the collector,
Date and time of collection,
Place of collection, (Story)
Sample ID number,
Analysis required,
Preservatives added (none),
Designation of grab samples.

4.3 Sampling Containers and Preservation. All samples will be collected into the appropriate jar and placed in a cooler at 4°C (+/-2°C).

Disposal Samples 32 ounce glass jars
TCLP Metals 8 ounce glass jars
Volatiles 8 ounce wide mouth glass jars with septa lid
TRPH 8 ounce glass jars

4.4 Sample Packaging. Field samples will be collected in appropriately labelled sample containers, enclosed within a plastic ziplock bag, and placed in a cooler. Once the samples for the day are acquired, and the required paperwork completed, the cooler will be packed with inert packing material, and the shipped to the laboratory. Each cooler will have a Chain-of-Custody form for the samples it contains. These forms will be placed into a plastic zip-lock bag and taped to the inside of the lid. Each cooler will be securely sealed with several pieces of strapping tape attached to the front and the rear side. Custody seals will be placed on the front and rear side of the cooler lid and covered with clear tape.

4.5 Chain-of-Custody. Chain-of-custody shall be maintained for all samples collected during this project. Chain-of-Custody forms will be completed for every cooler, and will be sealed in a zip-lock bag and taped to the inside of the lid of the cooler. Chain-of-custody procedures will be in accordance with USACE Sampling Handling Protocol and USEPA procedures.

4.6 Sample Shipment. All samples will be sent overnight delivery to:

Quanterra Environmental Services
5103 Old William Penn Highway
Export, PA 15632
POC Carrie Smith
(412) 731-8806

The laboratory will be notified of the beginning of sampling activities by the Project Chemist. No sample will remain on-site for more than 24 hours.

4.7 Quality Assurance Samples. QA samples shall be sent to a USACE QA laboratory by overnight delivery for government monitoring of sampling and contract laboratory performance. One split sample will be collected for the analysis outlined in Table 1. Sufficient sample volume will be collected for the sample to be split for the laboratory sample, the laboratory duplicate, and the MRD Quality Assurance split sample. Volatile samples will be collected as collocated grab samples. The Government (USACE) QA laboratory designated for this project is:

U.S. Army Corps of Engineers
Missouri River Division (MRD) Laboratory
ATTN: CEMRD-EP-LC (Sample Custodian)
420 South 18th Street
Omaha, NE 68102
Telephone: (402) 444-4314

The Contractor shall notify the QA Laboratory one (1) week prior to the first delivery of samples and at least 24 hours notice given for Saturday sample deliveries. (NOTE: All Saturday deliveries shall be scheduled to arrive at the MRD Laboratory prior to noon unless special arrangements can be made in advance with the MRD Lab.) The QA Laboratory shall also be notified when the final shipment of samples has been sent at the completion of sampling activities.

4.8 MRD Project Identification for QA Samples. The Contractor shall be responsible for adding the Project ID "MRD LIMS #2873" to the labels and chain-of-custody records for all QA samples shipped to the MRD Laboratory throughout the duration of this project.

4.8.1 Data Report to the Quality Assurance Laboratory. The Contractor's data for the samples will be submitted to the Missouri River Division Laboratory and the Omaha District for data evaluation and QA/QC comparison within 30 days of receipt of the samples. USEPA SW-846 data report forms are acceptable for Corps of Engineer projects. This report package will be submitted separately and will include all sample

and internal quality control results such as method blanks, spike and surrogate recoveries, and replicate analyses which meet or exceed the HTW minimum data reporting requirements.

4.8.2 Sample Identification. The Contractor will prepare a tabular presentation which matches contract laboratory sample identifications to QA laboratory sample identification. This table will identify all Field Duplicates and Field Blanks as such and match with their corresponding field samples where applicable.

5 Field Documentation. Several types of documentation will be prepared in the field in order to record the sampling activities and observations.

5.1 Field Note Books. Field notes regarding all sampling activities will be kept in a pre-numbered hardbound notebook. Indelible ink will be used for all entries.

5.2 Daily Quality Control Report. During the field activities, Daily Quality Control Report will be prepared (See attached). These reports will include, but will not be limited to, the minimum information listed in ER 1110-1-263.

5.3 Photographic Documentation. Photographic documentation is required of all samples and of the sampling locations.

6 Analytical. The following methods will be used of analysis of the samples.

6.1 TCLP Metals. SW-846 1311/6010. Mercury will be analyzed by cold vapor.

6.2 Metals. Metals shall be analyzed by 3050/6010.

6.3 Volatiles. Volatile will be analyzed by SW-846 5030A/8240A.

6.4 TRPH. TRPH will be analyzed by EPA Method 418.1 for petroleum hydrocarbons.

6.5 Disposal.

Parameter	Method
Paint Filter Test	SW-846 9095
Total Petroleum Hydrocarbons (TRPH)	EPA 418.1
BTEX	SW-846 5030A/8020
Total Organic Halogens (TOX)	SW-846 9022
TCLP Metals	SW-846 1311/6010
Volatile Organics	SW-846 5030A/8240A

7 Laboratory Quality Control. Quality control related to the acquisition of the chemical data has two main elements once the samples arrive at the laboratories. The first involves the documented handling of the samples as they are processed through the laboratory. The second area involves the project requirements for the method specified quality control. These two elements are discussed separately in the following two sections.

7.1 Sample Handling in the Laboratory. The proper handling begins with the document receipt by the laboratory of the samples from the field team. For this project, the samples will be shipped to Environmental Testing and Certification Laboratory in Santa Rosa, California. After signing the chain-of-custody, the sample receipt personnel will inspect the shipping containers and samples and document the condition in which the samples were received, and especially noting any deficiencies and note this information in the "Remarks" box of the Chain-of-Custody Form and the sample log book.

7.2 Method Specific Quality Control. The methods of analysis specified in Section 6 are the standard methods that will be followed without deviation. The analytical methods have quality control requirements and/or recommendations and the laboratory will meet or exceed all method quality control as specified by the method. This includes calibration procedures and frequency, laboratory quality control checks, detection limits, corrective actions and reporting.

7.3 Data Quality Evaluation. The data evaluation that will be completed at the laboratory will be a combination of contract compliance review and limited data evaluation. All data generated will be reviewed to ensure that they meet the written requirements. This review will be based on comparison of the information generated by the Laboratory with the written requirements of the Sampling and Analytical Plan for the project. The second portion of this process which deals more with data evaluation will involve review of the quality control results and preparation of a summary reports qualifying the data. Review will include all quality control parameters such as holding times, detection limits, method blanks, surrogate recoveries, matrix spikes, matrix spike duplicates, interference check sample results, internal standard data, GC/MS tune data and the initial and continuing calibration data. The data evaluation summary is intended to provide a qualitative judgment of the overall integrity and usefulness of the data.

8 Laboratory Turnaround Time. This project shall require no longer than a 7-day turnaround time (from receipt of sample) for analytical results.

9 Final Report. Upon completion of all fieldwork and receipt of the analytical results, a limited report will be compiled including, but not limited to:

9.1 Narrative. This will be a description of the project.

9.2 Supporting Data. The following plus any other appropriate material will be included as appendices to the final report:

Daily Chemical Quality Control Report,
Field notes,
Photographic documentation,
Chain-of-Custody, and
Certificates of Analysis.

Table 1
SAMPLING REQUIREMENTS

Matrix	QUALITY CONTROL SAMPLES				QUALITY ASSURANCE SAMPLES	
	Field Samples	Field Dups	Matrix Spike/MS Dup	Total A-E Samples	QA Dups/Splits	Total QA Samples
<u>LARC Staging Area</u>						
TCLP Metals 2-3'	6	0	0	6	0	0
Disposal 0-3'	2	1*	1*	4	1	1
Volatiles 4-6'	2	0	0	2	0	0
TRPH 2-3'	1	0	0	1	0	0
Lead 2-3'	1	0	0	1	0	0
<u>Former Drum Storage Area</u>						
Volatiles 4-6'	2	0	0	2	0	0
Disposal 0-6'	1	0	0	1	0	0
<u>Wash Pad Area</u>						
TRPH 2-3'	2	0	0	2	0	0
Lead 2-3'	2	0	0	2	0	0

* Site specific split samples are not required for 9095 and 9022.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

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